**Assessment Commentary Directions:** Respond to the prompts below by typing your responses within the brackets following each prompt. Do not delete or alter the prompts.

Please submit the following documents separately:

1. *Blank copy of your assessment*
2. *Answer key(s) for your assessment*
3. *3 student work samples with your feedback included (can be submitted as a single file or 3 separate files). Be sure to label below, on, and above level learners.*
4. *Optional – your original excel sheet can also be uploaded separately. It needs to be copied and pasted for 1c directly within this commentary.*

1. Analyzing Student Learning

a. Identify the specific standards/objectives measured by the assessment you chose for analysis.

[ **Grade 3 » Operations & Algebraic Thinking: Represent and solve problems involving multiplication and division.**

[CCSS.MATH.CONTENT.3.OA.A.1](http://www.corestandards.org/Math/Content/3/OA/A/1/)

Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7*.

[CCSS.MATH.CONTENT.3.OA.A.3](http://www.corestandards.org/Math/Content/3/OA/A/3/)

Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.1

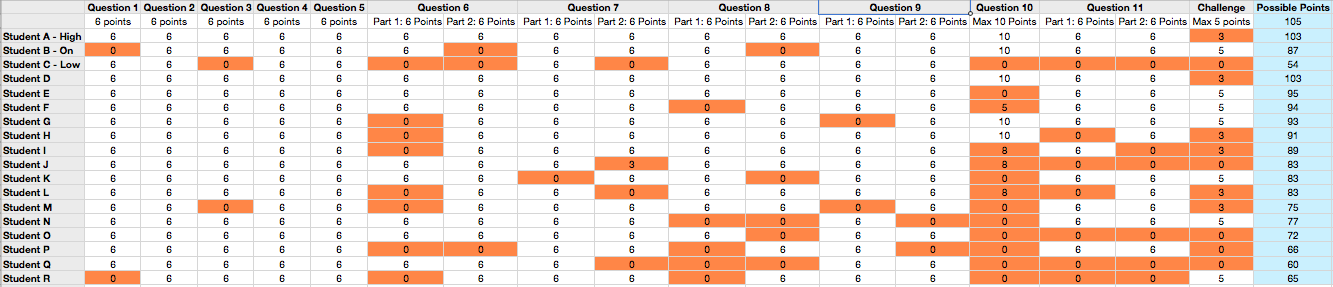
[CCSS.MATH.CONTENT.3.OA.A.4](http://www.corestandards.org/Math/Content/3/OA/A/4/)

Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = \_ ÷ 3, 6 × 6 = ?* ]

b. Provide the evaluation criteria you used to analyze student learning. *Part of this should be attached separately – this should be the answer key to your assessment. The other part of the evaluation criteria you can answer below – how do students need to perform in order to “master” the assessment (i.e., what grade should they earn).*

[ For this assessment, students should score a grade of 70 or above to prove mastery. Grading is as follows: Questions 1-5 are worth 6 points each; Questions 6-9 and 11 are worth 12 points each; Question 10 is worth 10 points; Challenge question is worth a maximum of 5 points. Questions 6-9 and 11 are two part questions with each part being worth 6 points. Partial credit will be given for any portion of the answer that is correct. Partial credit can be given for Question 10, depending on the level of understanding shown by the student. In order to prove an understanding of the problem and to achieve maximum points on question 10, students will need to correctly state a word problem and ask an appropriate, relevant question. In order for full points to be awarded on the challenge question, the student needs to show the correct answer as well as show their work. Partial credit will be given for those students who only provide a portion of this information. No points will be deducted for incorrect answers on the challenge questions.]

c. Provide a graphic (Excel chart) and narrative that summarizes student learning for your whole class. Be sure to summarize student learning for all evaluation criteria described above.

[ The chart above shows the results of each student’s work. The cells highlighted in orange are the questions for which students did not receive full credit. With a few exceptions, most students had an understanding of the content in problems 1- 5: however, two students missed problem 1 and two different students missed problem 3. These questions were multiple choice or fill in the blank. Eight students missed part 1 of question 6, which required them to answer the word problem correctly, while only three students missed part 2 of question 6, which required them to show their work. This information tells me that for the most part, the students understood the content; however, they simply failed to completely answer the question. Similarly, only one student missed part 1 of question 7, which required them to show their work on the word problem correctly, while four students failed to write the answer to the question. Again, this tells me that most of the students understood the content and just failed to complete the entire problem. Five students missed part 1 of question 8, and five students missed part 2 of question 8. Question 8 asked students to solve a word problem using an array: part 1 was the ‘show your work’ section and part 2 was the ‘tell the answer’ section. Only two of the five students missed both parts of the question. Two students missed part 1 of question 9 and two students missed part 2 of question 9. Part one was the ‘tell the answer’ section and part two was the ‘show your work section: four different students missed these parts. Five of the 18 students in my class received full credit for question 10. This tells me that the majority of the class does not know how to effectively write a word problem when given a multiplication fact. Four students were able to receive partial credit on this problem, while nine students received no credit. Students C, J, O, Q, and R missed both parts to question 11, which required students to know that there are 7 days in a week before they completed the multiplication problem. Three other students missed parts of this problem as well. This tells me that these students need additional supports for understanding this type of problem. Seven students received full credit for the challenge question, which was similar to question 11 in that it required the students to know how many days are in 2 weeks prior to solving the multiplication problem. Six students received partial credit for this problem, either because they gave the answer only or showed their work only, but did not do both. Since about half the class missed all or parts of question 11 and the challenge question, the class should receive additional instruction on how to solve these types of problems. ]

d. Use evidence found in the **3 student work samples and the whole class summary** to analyze the patterns of learning for the whole class and differences for groups or individual learners relative to

* Conceptual Understanding
* Procedural Fluency
* Mathematical Reasoning or Problem Solving Skills

*Consider what students understand and do well, and where they continue to struggle (e.g., common errors, confusions, need for greater challenge).*

[On average, students were able to correctly match a multiplication problem with the correct representation (repeated addition, array, or equal groups). However, many students struggled when they had to create their own drawing/image to demonstrate a given multiplication problem. While many of the missed points came from failing to give the answer to the word problems even after demonstrating an understanding of it in the ‘show your work’ sections, there still seems to be a lack of understanding when it comes to constructing and deconstructing multiplication problems.

Of the students who were able to correctly show their work on the two-part problems, many of them used arrays to do so. Within this group of students, there seems to be a strong understanding of the use of arrays with little or no demonstrated knowledge of equal groups and repeated addition.

More than half the class failed to acquire full points on question 10, which required them to create their own word problem. Of these students, most created an addition problem instead of a multiplication problem. While these students can give the correct answer to a given multiplication problem, it is clear that they do not yet have the reasoning skills to build one of their own.

**2. Feedback to Guide Further Learning**

Refer to specific evidence of submitted feedback to support your explanations.

a. Explain how feedback provided to the 3 focus students addresses their individual strengths and needs relative to the learning targets measured.

[Student A showed a high level of understanding throughout this review. This student demonstrated exceptional use of arrays to show a given multiplication problem, but did not use any other method. The feedback given to this student encouraged them to use equal groups and/or repeated addition in future problems. This student presented work that was very neat and organized, for which they received praise and encouragement to continue. Because this student is a high-level learner, they did not feel the need to elaborate on the showing of their work in the challenge problem. The feedback encouraged this student to be more creative and willing to demonstrate their thought process in the future.

Student B showed an average level of understanding throughout this review. Minor mistakes were made, showing that even though this student had a general understanding of the content, they may have rushed through their work and did not completely think each question through. The feedback given to this student explained why they missed points in certain areas and encouraged them to think the problems through and answer them completely.

Student C showed a low level of understanding when it came to constructing and deconstructing multiplication problems. This student was praised in areas where the work was done neatly; likewise, the feedback drew attention to areas that needed to be done more neatly. The student showed a general understanding of the use of arrays, so the feedback given suggested the use of arrays for problems that proved to be more difficult for this student to model using other methods. For mistakes made in questions 3 and 7, prompts were given to encourage the student to rethink the answer. For questions 6, 10, 11, and the challenge question, a complete lack of understanding was demonstrated. The feedback offered an overview on how to correctly set the problems up, while post it notes gave examples on how to work the problems. These Post-it notes would be completed during one-on-one time with Student C to assist in the growth of conceptual understanding and reasoning skills.]

b. How will you support students to apply the feedback to guide improvement, either within the learning segment or at a later time?

[As a class, we will discuss this review and work through the questions that posed problems for the students. This review will be a student-led interactive review. Manipulatives will be used as needed. Small groups will create their own word problems and act them out or demonstrate them to the class. Teacher and/or peer feedback will be used during this review to strengthen their understanding of this content, from which the knowledge gained will be used in future assessments.

Students who did not reach a level of mastery on this review will be given an opportunity to rework it after the class review.

During subsequent reviews, students who demonstrated a high level of understanding will be given more thought-provoking questions while keeping with the same content. This push to increase their creativity will help elevate their higher-order thinking skills. Lower level students will be given reviews that contain demonstration prompts, such as empty array grids and/or empty equal group circles. These prompts may provoke these students to begin thinking about how to solve the problem. Once they master the questions using these prompts, they will be expected to complete the problems without them. ]

**3. Using Assessment to Inform Instruction**

a. Based on your analysis of student learning presented in prompts 1c–d, describe next steps for instruction

* for the whole class
* for the 3 focus students and other individuals/groups with specific needs

Consider the variety of learners in your class who may require different strategies/support (e.g., students with IEPs, English language learners, struggling readers, underperforming students or those with gaps in academic knowledge, and/or gifted students needing greater support or challenge).

[The class will participate in a discussion regarding this review. This discussion will allow students to both ask questions and work together to solve them. Subsequent class lessons and activities will be done in order to strengthen the classroom understanding as a whole. Focus areas will include ways to give written elaboration when demonstrating reasoning and problem solving skills.

It is clear that there is a need for ample time to be spent on constructing word problems from a given word fact also. Because this seems to be a conceptual understanding issue with regards to creating a scenario where two numbers are multiplied together, students will work in small groups sorted by skill levels to created word problems to present to the class. This activity will be for formative assessment purposes only and will not result in a grade. Once the class has had opportunities to create word problems correctly, further summative assessments will ensue.]

1. Explain how these next steps follow from your analysis of student learning. Support your explanation with principles from research and/or theory.

* [The Constructivist theory stresses the importance of student-led learning. When given the opportunity to direct their own learning, students are allowed to recall previous knowledge and are given multiple ways to remember and retain learned information. By giving students ownership over their learning, students remain engaged and gain a feeling of empowerment. The students will participate in a class-wide discussion and problem solving session after this review, as well as create their own multiplicative scenarios and test them for accuracy. This will give the students the opportunity to understand the lesson content in the greatest detail possible.   
  (Resource: [K-12 Teacher's Alliance](http://www.k12teachersalliance.org)) ]